UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/954,821	10/21/97	HORNG C	EM/3239

QM02/1210

BACON AND THOMAS
625 SLATERS LANE
4TH FLOOR
ALEXANDRIA VA 22314

EXAMINER	
TYLER, C	
ART UNIT	**PAPER NUMBER**
3746	10

DATE MAILED: 12/10/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	08/954,821	HORNG, CHING-SHEN	
	Examiner	Art Unit	
	Cheryl J. Tyler	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on *04 October 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5 and 6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,3,5 and 6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

14) ☒ Notice of References Cited (PTO-892)
15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
17) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
18) ☐ Notice of Informal Patent Application (PTO-152)
19) ☐ Other: .

DETAILED ACTION

Continued Prosecution Application (CPA)

1. The claims, as amended 9/2/99, are now identical in scope to those originally filed on October 21, 1997. Since the originally filed claims were not argued until after a final rejection was issued, an action on the CPA addressing these issues follows.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1, 3, and 5-6 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The applicant claims a "sensor element located on a vertical line extending from the end edge of the lower polar plate assembly along a direction parallel to a longitudinal axis of the axle tube" (amended claim 1, lines 7-9). The disclosure teaches that the first mark 15 and the second mark 24 of the sensor element 23 are aligned with each other to "assure alignment of the sensor element 23 and the front end edge 121 of the lower polar plate assembly 12" (page 3, lines 7-8). However, Figures 1, 3, and 4 illustrate the front end edge 121 having a leader line associated with a hidden plane. While Figure 2 illustrates a front end edge

121, it is unclear whether the edge is along the periphery of the lower polar plate assembly or radially inward from the periphery of the polar plate assembly, as appears to be shown in Figures 1, 3, and 4. Thus, it is unclear from the disclosure and the drawings which edge constitutes an "end edge" in accordance with claim 1.

Additionally, the disclosure states that "the first mark 15 contains a vertical line V which is perpendicular to a radial line R ...and extended vertically from the front end edge 121 in a direction parallel to a longitudinal axis of the coil seat 1" (page 2, line 28 - page 3, line 2), and the first mark 15 is aligned with the second mark 24 on the sensor element 23 (see page 3, line 6). However, after extending the vertical line V in Figure 1 from the sensor element 23 to the lower polar plate assembly, the two elements (first mark 15 and second mark 24 of the sensor element) do not appear to be aligned. The misalignment further illustrates that it is unclear to what end edge the applicant refers.

Correction is required. *The applicant is reminded that no new matter will be permitted.*

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3, and 5-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1 recites the limitation "end edge" in lines 4 and 8 of the amended claim. There is insufficient antecedent basis for this limitation in the claim. The disclosure

recites a "front end edge 121" of the lower plate assembly and a "rear end edge 122" of the lower plate assembly. The applicant should clearly delineate to which end edge is being referred, and is reminded that consistent terminology is required throughout the specification and the claims.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Horng (5,093,599). Horng teaches a coil seat 2 including an axle tube 51; an upper polar plate assembly 3; a lower polar plate assembly 4; a winding 21 mounted between the upper polar plate and the lower polar plate; the lower polar plate including an end edge; and a circuit board 6 mounted to the axle tube, wherein the circuit board further includes a sensor element 61 adapted to activate a rotor. As shown in Figure 2, edge 43 of the lower polar plate assembly and edge 27 of the stator coil (with which the sensor element mates) are aligned, and Figure 1 clearly shows that the lower polar plate assembly is parallel to the longitudinal axis of the axle tube. Thus, since the lower polar plate assembly is in a different plane than the sensor element, the sensor element is

located on a vertical line extending from the end edge of the lower polar plate assembly along a direction parallel to the longitudinal axis of the axle tube.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (mentioned previously) in view of Vettori (4,773,829). Horng teaches most of the limitations of the claims. However, he does not teach that the position sensor is mounted in a notch in the circuit board. Vettori teaches a sensor 54, such as a Hall effect generator (see column 4, line 32), to detect transitions in polarity "in order to initiate current communication within the stator windings 38" (column 4, lines 34-36). Additionally, Vettori teaches that the sensor can be placed on the same printed circuit board 23 as the other components of the motor control circuit. Vettori teaches that such an arrangement is advantageous because it reduces the bulk of the fan, simplifies the electrical connections, and improves the operating characteristics of the drive motor. Mounting the position sensor in a notch would further reduce the bulkiness of the fan (see Fig. 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mount the position sensor in a notch on the circuit

board, as taught by Vettori, in the Horng invention in order to advantageously reduce the overall size of the fan and to improve the operating characteristics of the drive motor.

11. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horng (mentioned previously) in view of Murata (5,010,263). Horng teaches most of the limitations of the claims, except the use of marks on the coil seat and the sensor element. Murata teaches a Hall effect sensing-type device 21 (corresponding to the claimed sensor element) having a magnetic flux guide 22 (corresponding to the second mark) and a magnet 41 (corresponding to the claimed coil seat) having a magnetic flux guide 42 (corresponding to the claimed first mark). According to Murata, "when the magnetic flux shutter is rotated, the change in the magnetic flux which depends on the rotation of the magnetic flux shutter is sensed by the Hall IC 21. The Hall IC 21 outputs an electrical signal which depends on the rotation of the magnetic flux shutter based on the well known Hall effect" (column 3, lines 29-35). Thus, the position of two elements having a gap therebetween is determined when the magnet (first mark) passes the Hall IC (second mark). Murata further teaches that the two elements can be accurately located during the assembly process, and by using a Hall effect IC, the assembly process can be automated which advantageously reduces cost and improves the accuracy of the two components. According to Murata, "improved fixity of the components can increase the strength of the device, and increased positioning accuracy can offer a sensing device having high accuracy" (column 5, lines 3-6)

Murata further teaches multiple sensing devices having multiple flux guides, and thus, multiple marks. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use marks, as taught by Murata, in the Horng invention to advantageously position the two elements for increased positioning accuracy.

Response to Arguments

12. Applicant's arguments filed October 4, 1999 have been fully considered but they are not persuasive. The applicant argues that the exploded perspective view of Figure 1 does not show the IC 61 along a vertical line. "To the contrary, it cannot be determined from Figure 1, for example, whether the IC 61 is located radially inwardly or radially outwardly of the edge of the lower polar plate assembly 4" (Preliminary communication, filed 10/4/1999, page 3, lines 6-8). The Examiner respectfully disagrees. Horng ('599) teaches that the stator base 2 has a groove 27 in which the IC 61 is firmly fixed, and the lower polar plate assembly is fixed in the stator base 2. Given the orientation illustrated in Figure 1, sensor element 61 is in fact, located on a vertical line extending from the end edge of the lower polar plate assembly. The assertion of the sensor's location based on Figure 1 of the Horng reference ('599) is made at least as conclusively as the applicant's disclosure and Figures 1-5. As previously recited in the 35 U.S.C. 112-1st paragraph rejection, it is unclear to what "end edge" the applicant refers. Thus, using

the broadest reasonable interpretation of the claims in light of the disclosure and the figures, Horng ('599) satisfies the claim limitations.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheryl J. Tyler whose telephone number is 703-306-2772. The examiner can normally be reached on Monday-Thursday, 7:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy S. Thorpe can be reached on 703-308-0102. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3588 for regular communications and 703-305-3588 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0861.

CHARLES G. FREAY
PRIMARY EXAMINER

CJT
December 4, 1999